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YEAR, 1913

The AMERICAN DENTAL JOURNAL

BERNARD J. CIGRAND, M. S., D. D. S.
Editor & Publisher & Proprietor.

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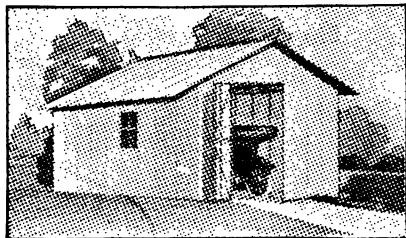
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AMERICAN DENTAL JOURNAL



DR. BERNARD J. CIGRAND
EDITOR ** PUBLISHER ** PROPRIETOR

For the past nine years the writer has been identified with the corps of editors of this dental periodical. but for the last four years the entire editorial and literary phases have been under my complete and absolute control; but the advertising features were not without a hamper, as the Journal was published by a trade house. But with July 15th, 1912. advertising and everything under the cover of the American Dental Journal will be in my personal charge, as the entire plant and its good will have come to me by purchase; and from this date on, one half of my time will be devoted to the welfare of this periodical and the great cause and mission of dentistry—as indicated on the title page of this Journal. The foregoing assures the dental profession of an Independent Journal and renders to the practitioners an opportunity of possessing a reliable voice as well as an arena for discussing all matters vital to the progress of the art and science of Dentistry. The

motto of this advanced dental periodical shall be: "Active in all worthy dental affairs,
but neutral in none." Very sincerely,
B J. CIGRAND.

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December 15 EDITORIAL AND COMMENTS

1913

THE VIOLINIST NEEDS HIS TEETH

The violinist needs his teeth—so do all other people; but the former requires his dental organs in order that he may be able to produce accurate and properly volumed tones.

If we as a profession could emphatically direct attention to the importance of sound teeth in people contemplating the study or mastery of the violin, it would surprise you to know of the hundreds of thousands who would respond to such a

summons of physiology and harmonics. At first thought this editorial does not seem logical, but read on and get the facts before you herald your opposition.

This does not happen to be a recent deduction of your editor. He knows how critical his readers are, and is pleased with their careful reasoning.

In 1904 your editor read a paper before the Chicago Dental Society entitled "Diet, Dentures and Disposition,"* and in this paper I directed attention to the fact that the loss of the dental organs of a violinist impaired his ability to produce harmonic waves and volume with accuracy. In this paper I also stated that I had sent out hundreds of letters to patrons in which the following questions were asked:

"1. In what particular has the wearing of artificial dentures affected the choice of your foods?

"2. Have you observed that your disposition has been in any sense influenced by their use?

"3. Have they interfered or aided you in your vocation? If so, state clearly how and why.

"4. Mention any other features relative to your artificial dentures which appeal to you in connection with your change in diet or disposition."

This brought a flood of valuable information, but the following (which I gave the society) was especially interesting, and relates to violinists:

"An answer which interested me intensely came from a violinist of considerable note, and contained a statement which absolutely surprised me. He is a gentleman of about 47 years, and has devoted his entire life to violin harmony. Some four years ago he was obliged to have his natural teeth extracted, necessitating artificial substitutes. He observed that his musical disposition had been interfered with. Strange as it may seem, he noticed that his musical ear was less certain regarding delicate notes. He could not account for the loss of this important faculty, and he insisted that it was due to the artificial dentures—at any rate, subsequent to the loss of his natural teeth

*Published in the *Dental Review* of February, 1904.



NOTES OF PAGANINI

his distinguishing talent was lessened. He called a number of times, and we had interesting interviews, though we could not arrive at any conclusion. I called at his home, and had the pleasure of hearing him play, but I could make no deduction.

"Just before taking leave he chanced to remark that when he was rendering fine or high pitch notes on the 'E' string he used to allow his chin to rest firmly on the trunk of the violin. Beyond this he could say nothing, except that the artificial teeth were interfering with his musical genius. The statement at first amused me, but after some days of meditation I was impressed with a possibility of the jaw and the teeth acting as attributes to the auditory nerve. After reading up the regional anatomy of the ear, and acquainting myself somewhat with the exact elements of hearing, I felt inclined to accept the theory that the eustachian tube rendered a function in this particular. In fact, recent discoveries along the line of oral aid to hearing induced me to believe that the eustachian tube was responsible for many sound registrations in people suffering from deafness. Still, how could the violinist suffer the loss of his distinguishing talent when the eustachian tube and the surrounding muscles were unharmed? Finally the solution dawned. The natural teeth are a splendid example of gomphosis. They are of a bone or ivory texture set into a bone, also of ivory texture. When the violinist rests his chin or mandible on the violin the tone vibrations travel readily through the inferior maxilla, conducting the sounds through the inferior to the superior dental organs, and thence to the bones of the head surrounding the auditory nerve. I then experimented with two violinists who still possessed natural occlusion, and placed unvulcanized rubber (a non conductor of sound) between the teeth and awaited results. Both musicians observed a lessening of distinguishing power. This clearly demonstrated that in the case of playing the vibrating musical instrument (the violin) the teeth act as a sound transmitter, and are directly responsible for vibratory registrations in the brain. I am unable to say how the natural teeth affect or assist in the rendering of music on other instruments which are not directly played by the aid of the mouth,

but I am satisfied beyond a doubt that in the case of violin music—where the notes are not ready-made, as in the piano and organ—the natural teeth play an important part.”

The natural teeth have a more intimate relation and a more direct connection with the function of the ear than is at first thought comprehended.

A small, delicate Swiss wrist watch, with its faint “tick,” can scarcely be heard when placed beside the ear; yet when



this minute timepiece is placed between the teeth the “tick” is not only louder, but sharper and decidedly more distinct.

People who suffer from the loss of distinct hearing use the so-called “rubber fan” or dental vibrator between the teeth, and the sounds of conversation, as well as distinct noises, can be heard with improved volume.

But the most important reflection in this relation is the pleasure we have in knowing that the world’s famed violinists

would have been sad disappointments—and, likely, impossibles—had they in their youth lost their teeth. Let us strive to impress these specialists with the necessity of dental and oral perfection.

On August 22, 1913, the general public was startled when



the newspapers announced that Helen Keller received her first impression of music by way of her teeth. This only corroborates what I stated to the Chicago Dental Society a half-score

of years ago. The Helen Keller article is interesting in this relation, and reads:

"Petoskey, Mich.—Miss Helen Keller, the noted blind, deaf and dumb woman, has heard her first note of music. She caught the vibrations of a violin string through her teeth (held against the bridge of the instrument), although her ear drums are useless.

"Prof. Franz Kohler, formerly of Pittsburg, now of the Oberlin Conservatory, declared that the harmonies had been communicated to her brain, and she had caught the strain. The first note which the concert meister played for Miss Keller was on the 'E' string of his rare old violin. Miss Keller was astonished. She held her teeth firmly against the scroll while Prof. Kohler played strains of Saint Saen's 'The Sivan,' using both the high and low registers.

"'Like the voices of singing angels,' Miss Keller communicated to Miss Macey, her teacher. Miss Keller was exhausted from excitement. Miss Macey declared that this was the first musical sound that had reached the brain of Miss Keller, despite reports of violin playing, which have stated that she has known musical harmony before."

This editorial should be read by those of your patrons who are violinists, or who hope to hear music by way of the teeth.

In the near future your editor will write another editorial on the necessity of sound teeth and their relation to musical careers other than those of violinists.

COMMENTS

We must impress dentists that back numbers of THE AMERICAN DENTAL JOURNAL will cost 25 cents per copy. The only way to be sure of better service is to pay \$1 and get twelve (12) (xii) copies, or a year's subscription.

* * *

Hereafter we will not reply to communications asking for information unless stamps for reply are enclosed. This stamp luxury is only enjoyed by the postmaster.



*Helen Keller
and David Warfield*

ORIGINAL CONTRIBUTIONS

THE SALE OF ELEPHANTS' TEETH

BY FRANK G. CARPENTER

[In view of the fact that 65,000 elephants were killed last year for their ivory, and because an enormous amount of this is used for dental purposes, dentists should feel interested in this thrilling hunt for teeth. The formation of toothbrush handles has required thousands of elephants. There are many inventions for the keeping of the same ivory handle and inserting a new brush, but the practitioners and the public are slow to get the idea, and an untold waste of ivory results from this extravagance.

Then there is that other elephant connection with dentistry—because the early practitioners carved teeth from elephant tusks; and it is of record where the entire case—teeth and base—were carved from an elephant tusk.

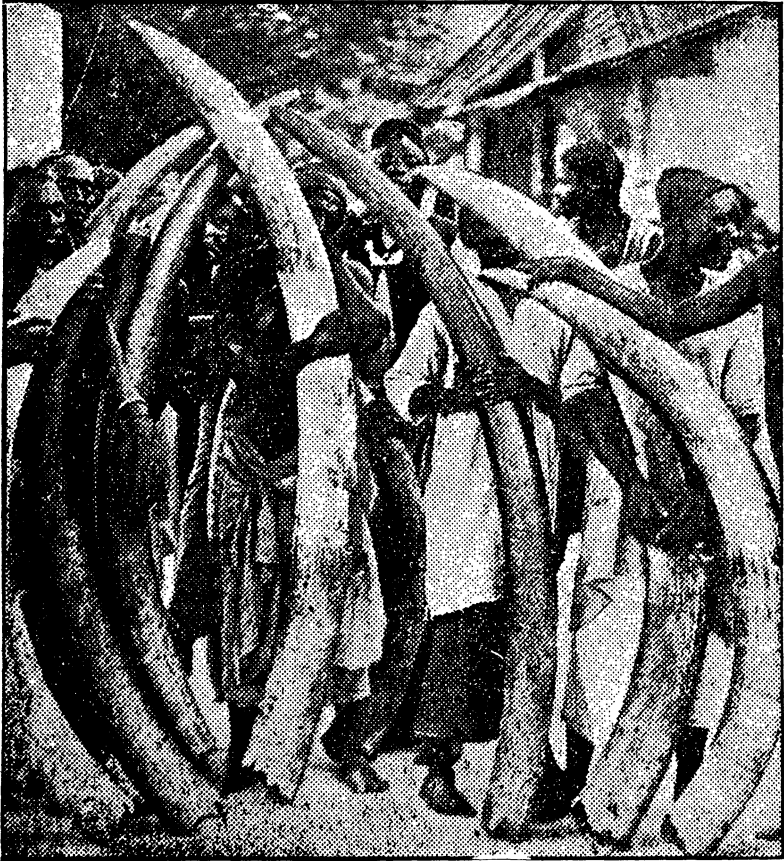
And another association exists, as I state in my "History of Dentistry," page 45, where I show that the word "shen" is the Hebrew word for tooth, and that "shen hob" is the name for elephant. Evidently the word tooth in that ancient language came from the root word elephant, either because of the attractive huge teeth of the elephant, or possibly because the artificial teeth of the Egyptians and Hebrews were made from elephants' tusks.

In any event, there are other reasons for our interest in the dentally connected elephant. Dr. McKellops, of St. Louis, showed me his ivory-handled hand pressure gold packers, and they were worth thousands of dollars.—EDITOR.]

There were 65,000 elephants killed in Africa last year, and more than a million and a half pounds of ivory were taken from them and shipped off to Europe. Of this fully one-third came from Zanzibar, another third was from Portuguese East and West Africa, and a large part of the balance was from the valley of the Congo. Cape Colony furnished 100,000 pounds, Egypt 300,000 pounds, and a large part came from the Niger territories and Lagos. During the last six months I have been traveling through the lands of ivory and elephants. I saw tusks for sale in the Egyptian Sudan. At Mombasa I was shown \$50,000 worth of ivory in one pile, and during my travels through

Uganda and German East Africa I passed many long lines of porters carrying elephants' tusks on their heads or tied to long poles which rested on their shoulders.

Zanzibar has for years been one of the chief ivory markets



NATIVES BRINGING IVORY

of the world. There are companies here which have their buyers and traders scouring German and British East Africa, as well as the Portuguese possessions farther south. These men take beads, cottons and other merchandise to trade with

the natives, and when they have accumulated a cargo they send it on the heads of porters down to the seacoast.

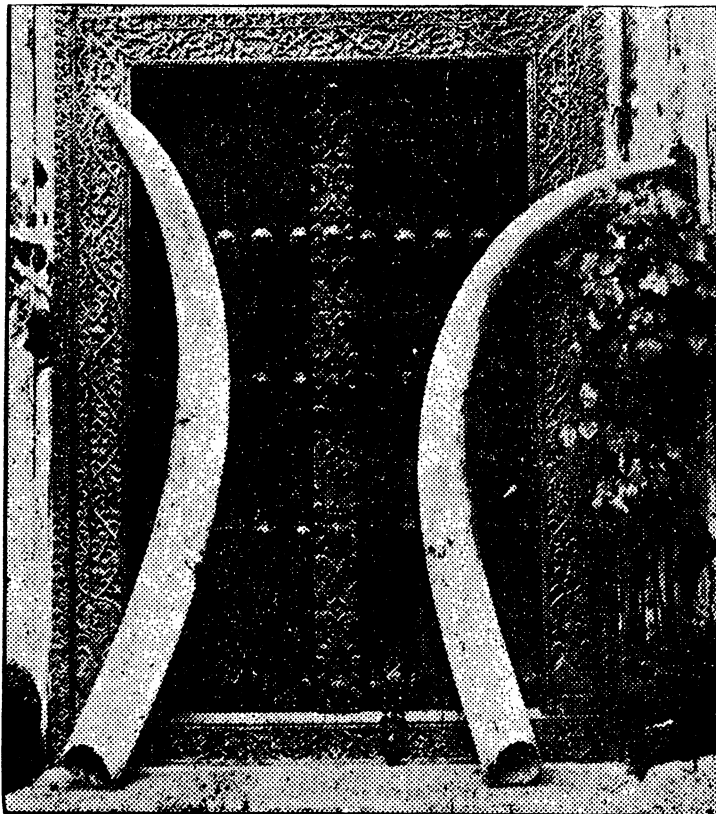
There are herds of elephants about the slopes of Mount Kilimanjaro, and the hunting goes on in the forests of the Great Rift valley. In British East Africa it costs \$250 for the right to shoot elephants, and a hunter dares not kill more than two during a season. It is against the law to kill the baby elephants or cow elephants there, and the same regulations prevail in Uganda. In the British Sudan a license is required to shoot any kind of big game, and this is also true of British Central Africa. In German East Africa hunters are charged a few rupees for their elephant shooting licenses, but they must pay a royalty to the government on all the ivory they get. As it is there is considerable profit in the business, and in the German colonies a fairly good hunter often makes big money. A single elephant may give tusks worth a \$1,000 and upwards, and an old bull may produce 300 or 400 pounds of the choicest ivory.

This African ivory brings the highest prices in the markets. It is superior to any other in the size of the tusks. I have seen some which were nine feet long, and there are some which weigh as much as 200 pounds each. The average weight of a tusk is much less than this, and one of 100 pounds is quite valuable. In India the average tusk does not weigh 50 pounds, but that of the African elephant is much heavier. Many of the tusks are broken when they are brought into the market. The elephants use them for plowing up roots and tearing down trees, and also for fighting their enemies. The average tusk is strong and elastic; but it can be broken, and the ends are sometimes snapped off. Ivory tusks are always sold by weight, and the traders tell me that in buying them of the natives they have to be careful to see that pieces of iron or bits of stone have not been driven into the hollows of the horns to make them weigh more.

Many of you have been in the hands of a dentist, and have seen how he almost breaks your jaw in pulling a molar with a long root. The tusks are really an elephant's teeth, and it is difficult to get them out of a dead elephant. They are fitted

into a bony socket, and the roots go almost up to the eyes. A tusk eight feet long may have two feet of its root imbedded in the skull, and if it is taken away at once the head has to be chopped to pieces to get it out.

In addition to the tusks the elephant has six great teeth



IVORY SHOP SIGN

inside its mouth on each side of its jaws, above and below, and these are almost as firmly imbedded as the tusks themselves. The tusks are hollowed about half way up. The smallest forms a big load for a man, while one weighing 150 pounds requires

four porters to carry it. Such men are paid from 3 to 5 cents a day for their labor; so that the cost of transportation is not heavy.

Have you ever heard of dead ivory? There is a vast quantity of it still left in Africa, and thousands of pounds are shipped to the ports every year. Dead ivory comes from animals which have died a natural death, or from tusks which have been gathered by the chiefs of the villages and stored away. Ivory has always been an evidence of wealth in Africa and some of the petty African kings have piled up ivory as our misers hoard money at home. Some of them have buried it near their villages, and others have made stockades of ivory tusks about their dwellings. During recent years some of such ivory has been gathered together, but there is said to be much buried yet to be unearthed. In addition to this is the ivory of elephants which have died natural deaths. This is composed of the enormous tusks of aged elephants which have dropped in their tracks or have been killed by lions or other wild beasts. Their bones lie where the huge animals fell, and the earth and leaves have covered them so that they are frequently hidden from view. I am told that the pygmies have killed many elephants with poisoned arrows, but, not knowing the value of the tusks, have left them lie idle where they fell. Some of this dead ivory has been injured by the forest fires, but that imbedded in the mud or covered with vegetation is still of great value.

I met, the other night, an old elephant hunter who has made thousands of dollars in ivory. He has not only shot elephants, but eaten them, and he tells me the meat is not at all bad. A good-sized animal often weighs as much as five tons, and when one is killed the natives come in for miles around and have a great feast. They cut up the huge beast with axes and knives, and tear the meat off in strips and smoke it as we smoke beef.

The European nations which have colonies in Africa are trying to keep the elephants from being destroyed. This is especially so of Belgium, which hopes some day to form an ivory monopoly. A great part of the elephants still living are

in the valley of the Kongo, and so many have died that it is expected that ivory will grow more valuable from year to year. As it is now the amount sold brings in millions of dollars, and most of this comes from the auctions in Antwerp. In that city there are several hundred thousand pounds of ivory on hand, and sales are made about four times a year. These sales are duly advertised, and buyers from everywhere come to attend them. The other chief markets are Liverpool and London.

During a recent visit to the Colonial Museum at Brussels I saw one of the heaviest elephant's tusks ever found. It weighs over 200 pounds, and as I stood beside it it reached high above my head. The biggest ivory tusk ever discovered was brought to Tabora, in German East Africa, in 1886, and was shipped from there to Hamburg. It was almost ten feet in length.

The ivory dealers here tell me that the best of the ivory goes to America, and that the second and third class are consumed in Europe. The fourth grade ivory is sent to East India for filigree work, and the poorest of all goes to China, where it is used for inlaying furniture and boxes. The best quality of ivory is employed in making piano keys and fan sticks, and also for the little statuettes cut out by the Japanese. Much of the product goes into billiard balls, knife handles, combs and fancy articles. During a visit I once paid to Sheffield, England, I was shown about \$100,000 worth of ivory which had been brought there to be used for knife handles, and I saw them sawing up the tusks into strips for this purpose. In such work every scrap of the material is saved, the shavings and dust being valuable for making ivory black or artists' pigments.

Some of the most remarkable ivory used within recent years is that which has come from the mammoths found in the tundras of Siberia. This is from huge animals which lived ages ago, but whose bones, protected by the frozen soil of northern Asia, are as good today as when the animals died. It is even said that in some cases the entire carcasses of the mammoths have been found, their frozen flesh, skin and hair having been thus kept for these thousands of years. The first of this frozen ivory was found over 300 years ago, and about seventy

years since the annual output was estimated at over 100,000 pounds. It is said that more than 1,600 mammoth tusks were sold in the year 1872. At present the greater part of said ivory is going to China. It does not compare in quality with our elephant ivory, the greater part of it being poor, while some is absolutely worthless.

INLAY ABUTMENTS IN BRIDGEWORK

BY DR. J. A. BULLARD

[This paper, recently read before the Fox River Valley Dental Association, may well be considered a step in the right direction regarding the problem of bridge anchorage. Your editor has designed the illustrations to aid you in comprehending this good paper.—EDITOR.]

When the president of your society did me the honor of requesting me to read a short paper at your meeting this evening he also selected the subject he would like to have discussed—namely, “Inlay Abutments for Bridgework.” Now, I like that way of doing things; it gives you something definite to start working upon. But when a request for a paper or a clinic is made, and no subject is specified, it usually takes the party of the second part about as long to decide what to do as it does to do it.

The subject which has been selected is an exceedingly practical one, and worthy of a great deal of thought. It has been discussed to a considerable extent already in societies, periodicals, etc., and the opinions of some very able and experienced men have been given for and against. This places it in the position of a live and debatable subject, and all I shall attempt to do is to present to you my own conclusions as drawn from a considerable amount of experience along this line.

Suppose we ask ourselves the question: What is required of an abutment for a stationary bridge?

First. I would say strength to resist the reaction of the forces which will be brought to bear upon it.

Second. Method of construction which will interfere to the least possible extent with the normal condition of the gum tissues surrounding the tooth selected for bridge support.

Third. Method of construction which shall not interfere with the harmony and æsthetic appearance of the completed case.

Now, gentlemen, this is a large subject in a short paper. It is the second most important point in bridge construction, the first being the health of the root.

In considering the first point—"strength" of an abutment—I mean that the attachment to the root or tooth shall be so constructed that it shall retain its hold under the stress of force brought to bear upon it from all directions, and shall present plenty of surface for the attachment of the adjoining teeth or dummies.

Now, how are we going to acquire a knowledge of the necessary amount of resistance to develop in this kind of work? Experience is really our only source of information. It is empirical, as is a great deal of our knowledge in dentistry. We learn through experience the amount of force a broach will withstand; how much pressure this thin blade of a cutting instrument will bear, and so on up through the list until we come to those instruments which are built to resist all the force which can be brought to bear upon them.

Anyone knows that if a man weighing 150 pounds should step upon a wooden lath suspended by the ends that it would break, but the same man would step upon a stick of the same length as the lath, 4x4 inches square, knowing that it would bear his weight. Now, such knowledge is gained by experience. We know, without stopping to calculate, that there is not enough material in the lath to resist the weight, and that there is an abundance of material, and to spare, to support the weight in the larger piece; but when the material in the same support is reduced, or the load increased until near the breaking point, then it becomes a matter of nicer judgment to regulate the factors.

In dental bridgework we near this latter condition—only it is practically impossible to mathematically figure out the strength required from the material used in relation to the weight or load brought to bear upon it.

In structural steel work I am told that they figure in factors

of 2 against bending and factors of 4 against breaking for span girders, or the strength is developed 50 per cent greater than the load the frame is expected to bear.

In our work we can not figure this way, for the load is uncertain, as is the manner in which it is applied. It comes sometimes in the form of a gradual pressure, and at others, suddenly, almost like the blow of a hammer, coming at one time directly upon the structure, and again at an angle, giving a wrenching and twisting action.

This bit of generalizing gives food for thought and applies to all sorts of abutments of bridgework. If we would ask ourselves a few questions, when planning bridgework, about how best to construct it, better results would be obtained. For instance, how is the bite? the length of overbite? In posterior work, how about the length of cusps of the teeth which are to oppose the bridge? Are they worn as much as those on the opposite side of the mouth? How about shortening elongated teeth, extending into the space where their natural antagonists have been missing in the opposing jaw for some time, while all the other teeth in the mouth still retain their natural occlusal plane?

These are some of the things to be looked after in planning bridgework, and if discovered in time will often guarantee successful service where otherwise failure would result.

The remarks which have prefaced the real topic of this paper have been introduced with the idea of conveying my opinion that it is necessary to study each case before deciding upon the style of abutment to use.

The inlay for attaching bridgework to natural teeth is ideal, where indicated and properly constructed, and it certainly fulfills our second requirement for an abutment, as it can be so constructed that it will interfere in no way with the cervical gum tissue.

INDICATIONS FOR INLAY ABUTMENTS. Generally speaking, where a sound tooth, or one with a cavity in it which may be included in the cavity preparation, is to be used as an abut-

ment, the inlay is indicated, providing there is no tendency to cervical decay on the buccal or lingual.

A molar tooth which has an oval, bulbous crown, with a constricted neck, and a large cavity, which, when excavated, will leave the walls thin, can best be inlayed. Reinforce the walls with cement, and cut down the cusps and occlusal margins so that they shall be entirely protected by the gold, rather than to attempt to parallel the surface for a shell crown.

Where a second or third molar is tipped badly toward a vacant space, and is to be used for bridge support, an inlay should be used, if possible.

Where posterior bridge comes to the cuspid for its anterior support, either above or below, the post inlay gives the best of results, as it gives plenty of strength, a continuous surface with the crown and root, and can be so constructed that it will not become unsightly by a display of gold.

In preparing teeth for inlay abutments it should be the rule to devitalize, as I believe the time is past when we will try to anchor a bridge with a shallow inlay in a vital tooth, and then wait in suspense for the time to come when the patient will tell you that there seems to be something movable about that stationary bridge.

When outlining the cavity the margins must be extended so that they may be kept clean, and the cervical margins come to or under the gum; and where the dummy teeth are joined to the inlay the solder must be kept free of the margin.

I anchor nearly all styles of inlays with posts, using 14-gauge round clasp wire, and not extending the post into the canal as far as you would a small gauge.

In preparing the post split one end for about one-sixteenth of an inch, anneal and bend one leaf over at a right angle, so that when the post is slipped into the canal one-half of the split end stands in line with the post, and the bent end extends out into the cavity, but not beyond the margin.

And now we take the impression. Make a loose-fitting band of 38-gauge German silver or copper, and trim so that when it is slipped over the tooth it will just touch the occlud-

ing teeth on closure. Fill the band with softened inlay wax, and press the band and wax upon the tooth with the post in position in the canal, and have the patient close, taking the bite; then chill the wax until it is cold before attempting to slip the impression from the tooth. Failure to get the wax cold accounts for many poorly fitting inlays. If the tooth of which you are taking an impression is bell-crowned, so that the wax would wedge between the band and tooth at the cervical, on the buccal and lingual, festoon the band out on these surfaces even with the largest diameter of the tooth.

Fill this impression of the tooth and cavity very carefully with Taggart's inlay investment, using a small brush, so as to be sure there are no bubbles. When the investment is hard cut the band with a stone at a point where you will do no harm to the margins, and peel it off. Then scrape the wax down to the model and shape up the wax for the inlay as you wish to have it, insert the sprue wire, flask and cast in 22 or 23 carat gold.

If an attempt to cast with one sprue is made many failures will result. I use two, three or four sprues, made of 18 or 20 gauge copper wire. If the post extending into the cavity is going to dam it up against the flow of the gold from one direction, put in sprues to let it in from another.

An inlay for an abutment should be fitted to the tooth and finished before the impression for the bridge is taken. If there should be difficulty in placing the inlay correctly in the impression, a bit of wire or scrap of gold can be tacked to it with solder as a marker before taking the impression.

From these models I have attempted to illustrate all the steps in the technique herein described. And now I will close this paper, hoping that I may have brought something of interest to you, and that I may also be able to glean some points from your discussion.

With the next dental order you send to any of the large dental supply houses order THE AMERICAN DENTAL JOURNAL. One dollar per year.

THE VALUE OF OPPOSITION

BY THE EDITOR

Recently, when the city of Aurora celebrated the event of the capture of the state high school football championship, your editor was requested to address the victors and the huge audience of friends.

The relationship of the theme to success in life and, especially to dental competition, or professional opposition, induces me to give the readers what appeared in the *Aurora Beacon-News* relative to that gathering:

Dr. B. J. Cigrand, of Batavia, father of the fleet West Side high school football star, like his son, sees a value in a game where there is opposition. So he told students of the West high school in an address today. "In fact," said Dr. Cigrand, "while the weak fear opposition the strong court it, and it is a developer. In the same ratio in which you welcome antagonism in like ratio is your success.

"Goethe has said, 'Have an honest purpose and in the face of all opposition dare to perform your work.'

"Criticism is wholesome, and should be the flame that inspires you with enthusiasm to make a renewed and improved attack.

"All life and all inanimate existence demonstrates that opposites are essential to the great divine scheme of things. We have the sweet and the sour; the acid and the alkali; the swift and the slow; the positive and negative, and the optimistic and the pessimistic.

"A kite rises against—not with the wind. Live and eager fish swim up-stream. Take the element of opposition out of the biography of great lives and they would become careers of failures. Your armor for this battle of life is forged in the class room and daily toil. Sabastian Bach, great musician, suffered all forms of opposition to his ambition. His music was purposely destroyed, his candle blown out and yet under moon-light beams he bequeathed soothing music for a weary world.

"Napoleon said, 'When I meet the Alps there will be no Alps,' and on his roadways today modern automobiles and carriages view the beautiful nature which opposed every step taken by Napoleon's army.

"The spider and the bee go to the same flower, one for poison and the other for honey. Raleigh wrote the history of the world in the tower of London. Bunyon wrote his magnificent 'Pilgrim's Progress' in a cell. Thomas Paine sang forth the songs of freedom from a prison wall. If the great can succeed with these odds, why need ordinary invisible obstacles dampen our ardor?

"Do not be discouraged at the first fumble. Take heart. Our greatest heroes fell the hardest. Mistakes, errors and fractional failures often ripen into the most pronounced triumphs. Play the game of life like football. Keep courage, obey the rules; the last moment oft brings the victory.

CANDY DESTROYS THE TEETH

DAVID PAULSON, M.D.

[The contributor here brings a new and reasonable argument that sweets and candy destroy the teeth by the chemical influence, and directs attention to the Bible.—EDITOR.]

There has been developed in modern times an extensive mania for concentrated, artificial sweets, and we are paying a dear price for it. The enormous quantities of confectionery in various forms and cane sugar that are consumed not only aggravate indigestion, hyperacidity, gastric ulcer and blood disorders, but Dr. Deeks, who is the pellagra specialist at the government hospital in the Panama Canal zone, in a paper read before the International Association for the Study of Pellagra at Columbia, S. C., said, among other things: "The reason why pellagra is on the increase, as shown by statistics, are two: First, a better knowledge of the disease, and consequently more cases are reported; second, and more important, because the consumption of sugar has increased inordinately



SANTA CLAUS—PATRON OF "SWEET TOOTH"

in all civilized countries. For example, in England, 300 per cent per capita in fifty years.

"Last year the United States consumed almost seventy-four and one-half pounds per capita, or more than three ounces daily. Suppose only one-half of this amount is consumed, that is more than sufficient to set up the train of symptoms from which the American race now suffers. . . . There is nothing in the stomach to convert the sugar into an assimilable product, consequently it is subject to the action of the bacteria of fermentation, which converts it into irritating, diffusable organic acids. . . . These produce local irritations and subsequent toxemia."

WHY WE HAVE A "SWEET TOOTH"

When cooked starch is thoroughly masticated it is partially changed into natural sugar in the mouth. No doubt the real reason nature has given us such a taste for sweets is to coax us to masticate our food thoroughly, but instead of doing that the popular program is to eat soft, sloppy food that requires *no* mastication and then saturate it with cane sugar to gratify the taste artificially.

Two hundred years ago cane sugar was an absolute luxury. On this point, Dr. Deeks says: "Sugar was unknown, except that the natives chewed the sugar cane, or tapped the sugar maple, or sought the honey of wild bees." And when we remember that it requires about twenty-five pounds of maple sap to make one pound of sugar, we have a hint that nature never intended us to eat cane sugar in its present *concentrated* form.

A SWEET EATER'S DIET

Dr. Byford, a prominent Chicago physician, thus described a sweet eater's daily diet:

"Breakfast: Fruit which contains its own sugar, sweetened by additional sugar; breakfast cereal, made palatable by sugar; coffee sweetened by sugar, or milk which contains 3 per cent of its own sugar; perhaps griddle cakes swimming in syrup. Many who do not eat griddle cakes eat marmalade or other sweets on muffins, or hot bread, or sweet buns, or coffee cake.

"In the forenoon fruits and candies are common lunches for the young and the fair.

"For lunch: In addition to the vegetables or other things, a drink that contains sugar, such as coffee or tea, cocoa or milk; some sweetened fruit or preserves to eat with the bread, or a sweet dessert.

"In the afternoon perhaps candy, soda water or ice cream, or a 5 o'clock tea (sweetened) and cake or sweet crackers.

"For dinner: In addition to the meat and vegetables, a sweet dessert; probably a drink with sugar; sometimes an artificially sweetened fruit salad. Or, if supper is eaten, preserves or sweetened fruit and sweet buns, or cakes, or cookies.

"On summer nights: Soda water or ice cream and cake for the young and the fair. At bedtime perhaps beer, or grape juice, or fruit. Some take candy, or fruit, or soda water, or grape juice, or ginger ale, or a sweetened alcoholic drink between the lunches and meals mentioned above."

THE CANDY CURSE

The candy habit is generally acquired in early childhood. On this subject Dr. Deeks uses the following strong language:

"In the attractive manner sugars are now manufactured and sold, in the forms of sweets and candies, to stimulate their consumption, they have crept into every man's home. I firmly believe they are the greatest curse in modern civilization. I do not except alcohol in all its varied forms. I believe that a popular movement against their present method of use would do more to lessen human suffering than the temperance movement against alcohol.

"The candy shops, with wide-open doors to children of all ages, where their gift pennies are spent, are a veritable curse to the land, poisoning the youth of the country and undermining their physical and mental development."

The liberal addition of sweets to ordinary food enables the appetite to last long *after* hunger has been satisfied. On this point Packard says: "If you take from that attractive pie, pudding or pastry the sugar that the well-meaning but ignorant cook saturated it with, would you eat the pie or cake? You

would not; for what you are after is the sugar. You eat trashy, injurious stuff merely because it is baited with sugar. Nowhere in nature's code of health laws will you find a guarantee that pastry, coffee, tea, cane sugar, doughnuts and tobacco make brain or muscle."

On this same point Dr. Byford says: "After acquiring a taste for sweetened foods the child loses the natural relish for ordinary diet, refuses to eat them unless sweetened, and the appetite being perverted can no longer be depended upon as a guide. And then it eats from taste rather than from appetite, filling the stomach with indigestible food, whether it is hungry or not."

SOME UNPLEASANT RESULTS

Dr. Deeks gives this accurate picture of a sugar and candy fiend: "Can we find a more pitiable picture than the emaciated, anemic, constipated child, with coated tongue, decaying teeth, fickle appetite, fed at all hours, fretful, irritable, sleepless, suffering from rheumatism, chorea, developing heart disease, dwarfed in its physical and mental development? This is the the every-day picture of a sweet-eating child.

"The sugar eater has usually a very red, irritable tongue, rapidly recurring hunger, with a ravenous appetite which is quickly and easily satisfied, red throat, a tendency to heartburn, and ineffectual belching. This combination of anemia and gastric hyperacidity, which is due to sugar fermentation, leads also to gastro and duodenal ulcer. Acne and eczema are largely due to excess of pastry and sweets. It is a frequent observation to see an acne eruption follow a sweet and pastry debauch."

SOWING IN CHILDHOOD, REAPING IN OLD AGE

The thirty pounds of candy that is eaten every year in this country for every man, woman and child in the land is seed sown for a bountiful harvest. On this subject, Dr. Byford says: "It is certain that pie, cake, rich pudding, imperfectly cooked bakery, sweets, are prime factors in producing such diseases as gallstones, diabetes, inflammation and ulcer of the stomach and bowels.

"The evil begins its work in early childhood. The gout

and diabetes of old age are prepared for in youth; the gallstones of middle age begin to form in early life. Thus by destroying children by acute diseases, adults by chronic affections and old people by premature failure of the vital powers, the excessive sugar eating so prevalent today not only impairs the public health, but shortens the durations of human life."

The sugar inebriate, on account of his gastric hyperacidity, demands a large amount of flesh food, because it has a tendency to use up the excessive acids in his stomach. At the same time the waste products in the meat stimulate the production of more gastric juice, and at the same time aggravate some of the troubles that have been produced by the excess of cane sugar and candy.

On this point Dr. Byford has well said: "On account of the excessive acidity and fermentation he generally finds that natural food disagrees, so he comes to depend to a large extent upon meat as a nourishment, and thus is injured by an excess of protein."

PRACTICE MODERATION

There is a sane, moderate use of sweets which probably does no harm to the healthy individual. It is the candy craze, the disposition to absolutely cover a dish of wholesome cereal with sugar when in the process of digestion it is itself changed into natural sugar. It is this excessive use that is a curse, and many ignorantly attribute to overwork or to unhealthful climate the very symptoms that are produced by this use of artificial sweets.

On this point Packard writes: "If you have chronic catarrh the probabilities are that you are a sugar fiend. Use fruits and pure water to cleanse the system. Resort particularly to apples. If you crave sugar eat seedless raisins, figs, dates, malt sugar or honey. You will readily discover the fact that a very little natural sugar will thoroughly satisfy sugar craving, whereas the artificial sugar of commerce never satisfies."

About one-half of the honey is natural sugar, and for this reason the system can tolerate it more readily than cane sugar, but even with honey it is well to remember that the wise man said: "It is not good to eat *much* honey."—Prov., 25:27

When eating those things that are likely to tempt the appetite at the expense of the physical health it is well to remember the inspiring words of Paul: "All things are lawful for me, but I will not be *brought under* the power of any."—1 Cor., 6:12.

Let us individually seek God, so that we shall not be among that class of whom Paul wrote: "Many walk of whom I have told you often, and now tell you, even weeping, that they are the enemies of the cross of Christ, whose end will be destruction, whose God *is the stomach*."—Phil., 3:18, 19, Emph. Diag.

"AND TEETH LIKE PEARLS"

BY "RAFFLES"

[The following little poem from a recent *Chicago Daily Journal* shows the value of good teeth, as they evidently came out of the game in regimental order.—EDITOR.]

I knew a chap some years ago,
As handsome as could be,
Whom all the lassies craved to know,
He was so fair to see.
With cheeks aglow and teeth like pearls,
And eyes—the soulful kind,
And raven locks that lay in curls
Upon a brow unlined.
He went to school and made the team,
And played with them one day;
And bruised and maimed (or so 'tis claimed)
They dragged him from the fray.
For brutes had chewed his handsome face,
And smote him on the gears;
And walked on each inviting space,
And chewed off both his ears.

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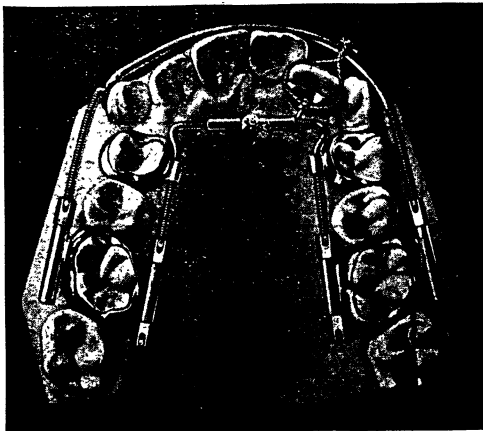
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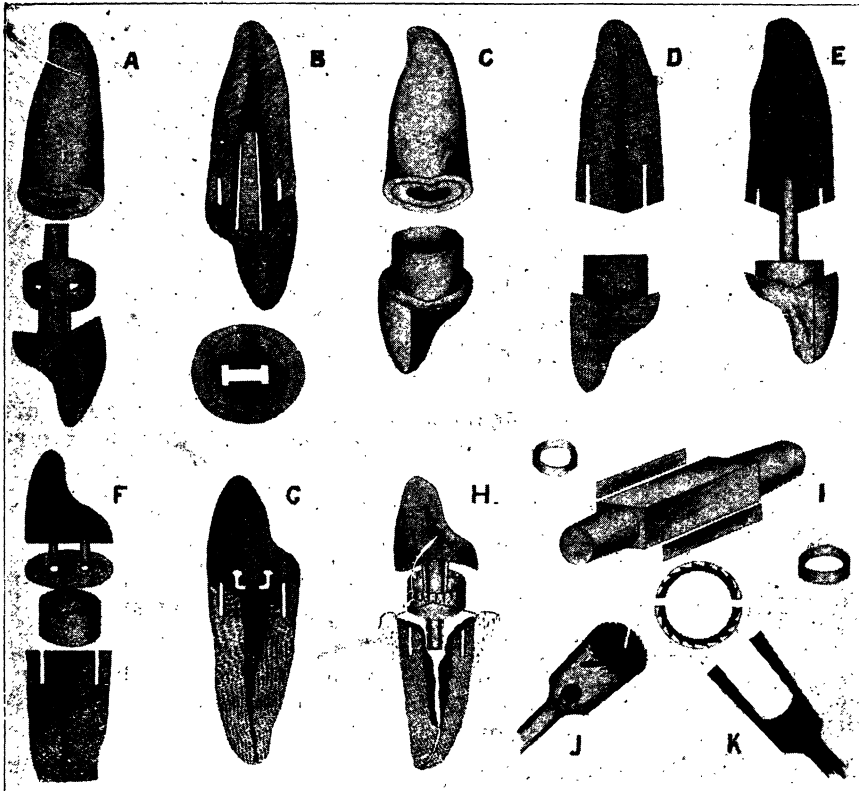
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Figs. C and D—New crown, with band acting as a post.

Fig. E—Richmond crown, with Intra-Dental Band.

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Fig. H—Badly decayed root, with Intra-Dental Band.

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SEPTEMBER, 1912

No. 9

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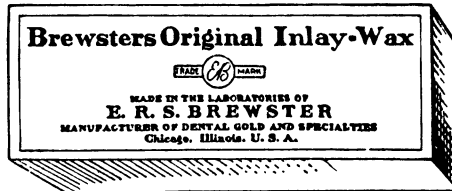
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